

CLAIMS

1. A high voltage treatment equipment for liquid comprising:
a pair of electrodes, at least one electrode out of said pair of electrodes being arranged so as to be dipped into liquid; and
means for applying a pulsed power between electrodes of said pair of electrodes,
wherein said pair of electrodes are constituted so that a region whose field strength is raised to a value larger than 500 kV/cm is present in the vicinity of at least one electrode dipped into said liquid.
2. A high voltage treatment equipment for liquid comprising:
a pair of electrodes, at least one electrode out of said pair of electrodes being arranged so as to be dipped into liquid; and
means for applying a pulsed power between electrodes of said pair of electrodes,
wherein at least one electrode dipped into said liquid is a rod-like electrode whose diameter is not more than 1 mm.
3. The high voltage treatment equipment for liquid according to claim 2, wherein voltage of said pulsed power is not more than 100 kV.
4. The high voltage treatment equipment for liquid according to claim 2, wherein an extreme end of said rod-like electrode is formed to be hemisphere.
5. The high voltage treatment equipment for liquid according to claim 2, wherein said rod-like electrode is an anode electrode.
6. A high voltage treatment method for liquid comprising:
using a pair of electrodes, at least one electrode out of said pair of electrodes being arranged so as to be dipped into liquid; and
applying a pulsed power not more than 100 kV between said pair of electrodes to form a discharge state in said liquid between said pair of

electrodes,

wherein said liquid is treated so that a region whose field strength is raised to a value larger than 500 kV/cm is present in the vicinity of at least one electrode dipped into said liquid.

7. The high voltage treatment method for liquid according to claim 6, wherein one electrode dipped into said liquid is a rod-like electrode whose diameter is not more than 1 mm.

8. A high voltage treatment equipment for liquid comprising:

a pair of electrodes, at least one electrode out of said pair of electrodes being arranged so as to be dipped into liquid;

means for applying a pulsed power between electrodes of said pair of electrodes; and

a movement mechanism for moving at least one electrode dipped into said liquid so as to change a relative position with respect to the other electrode.

9. The high voltage treatment equipment according to claim 8, wherein one of said pair of electrodes is a rod-like or linear electrode.

10. The high voltage treatment equipment according to claim 9, wherein the other electrode separately from the rod-like or linear electrode of said pair of electrodes is a tubular or ring-like electrode, and a relative positional relationship between said rod-like or linear electrode and said tubular or ring-like electrode can be changed while maintaining a state that said rod-like or linear electrode passes a center point or an axial center of said tubular or ring-like electrode.

11. The high voltage treatment equipment according to claim 10, wherein an end of said rod-like or linear electrode is positioned in the vicinity of the tubular or ring-like electrode.

12. The high voltage treatment equipment according to claim 10 wherein,

said rod-like or linear electrode is moved by said movement mechanism.

13. The high voltage treatment equipment according to claim 12, wherein said movement mechanism is a winding mechanism, which winds the linear electrode.

14. The high voltage treatment equipment according to claim 8, further comprising:

means for measuring a discharge voltage or a discharge current to said liquid; and

control means for controlling a movement speed of a relative position of an electrode by said movement mechanism on the basis of the value measured by said means for measuring a discharge voltage or a discharge current.

15. The high voltage treatment equipment according to claim 8, further comprising:

means for measuring the flow rate, conductivity or impedance of said liquid; and

control means for controlling a value of voltage applied by said means for applying the high voltage on the basis of the value measured by said means for measuring the flow rate, conductivity or impedance of liquid.

16. The high voltage treatment equipment according to claim 9, wherein the diameter of said rod-like or linear electrode is not more than 1 mm.

17. A high voltage treatment method for liquid comprising:

using a pair of electrodes, at least one electrode out of said pair of electrodes being dipped into liquid; and

applying a pulsed power between electrodes of said pair of electrodes to form a discharge state in said liquid between said pair of electrodes,

wherein a discharge state of said at least one electrode dipped into liquid is continued while changing a relative position with respect to the

other electrode.

18. The high voltage treatment method for liquid according to claim 17, wherein said liquid causes to flow continuously or intermittently.

19. The high voltage treatment method for liquid according to claim 18, wherein a flow of said liquid is controlled so that bubbles are not stayed in a discharge generation part of said pair of electrode.

20. The high voltage treatment method for liquid according to claim 2, further comprising a pipeline through which said liquid passes, wherein said rod-like electrode is positioned at an axial center of said pipeline, an electrode separately from said rod-like electrode out of said pair of electrodes is a ring-like or tubular electrode arranged coaxially with the inner peripheral surface of said pipeline and embedded in the wall of said pipeline, and said ring-like or tubular electrode is provided so that a plane part vertical to an axial direction is not exposed substantially to said liquid.

21. The high voltage treatment method for liquid according to claim 20, wherein no difference in diameter is present in a connection part between said pipeline and an inlet or outlet pipe.